

Boll Weevil Eradication

Q. What is the Boll Weevil Eradication Program?

A. This program is a cooperative effort in which the U.S. Department of Agriculture (USDA) and State officials work with cotton growers to eradicate the boll weevil, in incremental stages, from the United States. Since 1892, when it first entered this country, the boll weevil (*Anthonomus grandis* Boheman) has plagued U.S. cotton farmers. Boll weevil eradication began with a successful trial program in North Carolina and Virginia in 1978-1980. Since then, this program has expanded to include cotton acreage in South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee, Missouri, Arkansas, Louisiana, Oklahoma, Texas, New Mexico, Arizona, California, and adjacent areas of northwest Mexico. Approximately 95 percent of all U.S. cotton is currently covered by the program, and the remaining areas are likely to be included in the near future.

Q. How does the program work?

A. Authorization to operate the program locally is usually established through State legislation and grower-approved referenda. Most States have a boll weevil eradication foundation with cotton-producer members either elected or appointed along with State agricultural officials. USDA cooperates by providing technical support and limited funding. Initially, in each new State, program managers implement an eradication phase to eliminate the boll weevils and then a post-eradication phase to prevent reinfestation.

Q. Where is the program active?

A. The program is currently working to eradicate the boll weevil in Mississippi, Tennessee, Missouri, Arkansas, Louisiana, Oklahoma, Texas, and New Mexico. Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Arizona, and California have all successfully eradicated the boll weevil, along with portions of Tennessee and Texas. Most recently, Kansas was added to that list after extensive trapping data in 2000 and 2001 confirmed the State is weevil free.

Q. How is the boll weevil eradicated?

A. Three main techniques—pheromone traps for detection, cultural practices, and chemical treatments for control—are employed over a 3- to 4-year period. In most areas, in addition to the cultural controls, the program begins with a series of treatments in the fall. In

subsequent years, traps are placed around all cotton fields in the spring as cotton is planted. Control operations begin about 5 or 6 weeks later. Continuous, season-trapping pinpoints areas of infestation and triggers necessary treatments until all weevils are gone. This usually takes about 3 to 4 years.

Q. What chemicals are used?

A. Malathion is the primary pesticide used to eradicate the bollweevil. It is applied to cotton fields at ultra-low-volume rates of 10-12 ounces per acre (43,560 square feet) from contract aircraft. That's like taking a can of soda and evenly distributing it over a football field. Tractors and truck-mounted sprayers are also used to treat fields that cannot be treated with aircraft. The application rate is slightly higher for ground equipment, approximately 16 ounces, because it is difficult to calibrate the equipment to release smaller amounts.

Q. How many chemical treatments does the program apply in each area?

A. The program applies insecticide only in cotton fields where infestations are detected. In most new program areas, treatments begin in the late summer or early fall. Infested fields will generally receive an average of seven applications during these initial treatments. Applications are monitored, especially around environmentally sensitive areas such as schools, hospitals, churches, and housing developments, to guard against exposure. After the initial fall applications, treatments in subsequent seasons are applied only where weevils are detected, from pre bloom until harvest. Based on continuous trapping surveys, the number of fields requiring treatment in subsequent years usually goes down dramatically until eradication is accomplished.

Q. How are aerial applicators hired?

A. The program's grower organizations, including State regulatory officials, solicit bids for the aerial application of insecticide. Bids are reviewed by program managers, and contracts are awarded by the organizations on a competitive basis. All applicators must comply with State and Federal regulations and the requirements for certification.

Q. Who actually runs the program?

A. The following organizations are responsible for daily program operations in the areas indicated:

Southeastern Boll Weevil Eradication Foundation, Inc. (VA, NC, SC, GA, FL, AL, MS, TN, and MO); Arkansas Boll Weevil Eradication Foundation (AR); Louisiana Boll Weevil Eradication Commission (LA); Oklahoma Boll Weevil Eradication Organization (OK);

Texas Boll Weevil Eradication Foundation (TX); South Central New Mexico and Pecos Valley (NM) Cotton Boll Weevil Control Committees (NM).

The U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) provides technical support and limited Federal funds. The State departments of agriculture provide regulatory support, and USDA's extension service helps in disseminating program information and providing other valuable information regarding crop production.

Q. How does the program expand into new areas?

A. Expansion of the program usually requires cotton producers within the area of proposed expansion to pass a referendum with at least a two-thirds majority. State regulatory agencies are authorized under State laws to hold such referendums. Once a referendum passes, participation becomes mandatory according to State law. Without mandatory participation, eradication could not be accomplished.

Q. How do growers benefit from participating in the program?

A. Growers benefit by eliminating all crop damage and losses caused by the boll weevil and all costs related to controlling this pest. Once the boll weevil is eradicated from an area, growers typically experience an increase in cotton yield of at least 10 percent, significantly more in some areas. Moreover, resurgence of beneficial insects preying on other cotton pests further reduces the need for pesticides, resulting in additional cost savings. After eradication, the grower's cost of production is significantly lower, yield is often greater, land value increases, and integrated control programs for other cotton pests become much more feasible.

Q. How does the general public benefit from boll weevil eradication?

A. As the weevil and its damage are eliminated from an area, the local cotton industry becomes more stable and cotton acreage tends to increase. The reduced cost of production results in cotton becoming more profitable, allowing growers to spend greater amounts in the local community for equipment, goods, and services. In Georgia, for instance, the economic benefits have been dramatic, with average gross crop revenues increasing from \$70 million per year prior to eradication to \$400 million per year afterwards. As a result of this increased profitability, rural and ultimately Statewide economies are strengthened.

Q. Are there long-term environmental benefits from eradicating the boll weevil?

A. The long-term environmental benefits that come from eradicating the boll weevil are significant. After the boll weevil is eradicated from an area, the need for insecticides is significantly reduced, and in many areas nearly

eliminated. Cotton growers experience a 40 to 90 percent reduction in their overall use of insecticides. In addition, a weevil-free environment allows growers to rely less on insecticides and to make full use of beneficial insects in developing their long-term pest management strategies.

Q. How long will it take to complete the program?

A. Although areawide boll weevil eradication began in 1983, the nationwide effort involves over 50 different program areas or zones. The program has expanded into these zones in a somewhat orderly sequence, with only a few zones not yet covered by the program. Many zones have just started the program within the last year or two. Once a zone begins eradication activities, it usually takes about 3 to 4 years for weevil populations to be eliminated. At that point, the zone moves into the post eradication phase to guard against reinfestation. Nationwide eradication is expected by 2006.

Q. How is the program's cost financed?

A. Boll weevil eradication is a cooperative effort in funding as well as in field operations. Growers typically pay at least 70 percent of the program's cost, while a combination of APHIS and State appropriations pays for the remaining 30 percent. In some areas, the State contribution has been as high as 50 percent. The growers' share is collected as an assessment, based either on the number of acres grown or bales produced. In addition to APHIS' cost-share cash contributions to the program, USDA's Farm Service Agency has provided critical loans to grower organizations involved in eradication. These loans have allowed growers to spread the program cost over a few more years, thereby reducing the amount of their annual assessments to more affordable levels.

Q. What is done to prevent reinfestation? What will keep the boll weevil from returning?

A. Domestically, seed cotton, trash from cotton gins, and used cotton-harvesting equipment are inspected, treated if necessary, and certified "pest free" before they can be moved into weevil free areas. These measures are designed to keep boll weevils from being transported into an area from which the pest has been eliminated. In addition, the planting of noncommercial (ornamental or experimental) cotton is restricted during the active eradication phase. During the post-eradication phase, trapping continues around cotton fields to detect any reinfestation. Localized treatments are applied quickly if reinfestation occurs. Internationally, APHIS continues to cooperate with the government of Mexico to implement the eradication program in adjacent cotton-growing areas of northern Mexico.

Q. What are the post-eradication costs?

A. Typical post-eradication costs, in the eight States where eradication is completed, range from \$5 to \$10 per acre initially and then level out to about \$3.50 per acre per

year. Eventually, as nationwide eradication is accomplished, these costs will decline significantly because the risk of reintroduction will decrease, reducing the need for trapping and other preventive work.

Q. How long will Federal funds be needed to support the program?

A. Federal funding decisions are made each year by the Congress. Active eradication is likely to continue until 2006, when nationwide eradication is expected. In the interim, Federal funds are expected to offset a portion of the program's cost, making it possible for growers to participate. The amount of Federal funding needed is expected to decline steadily over the next few years.

Q. How will the eradication program affect other cotton insects?

A. The boll weevil is considered the key pest in cotton production because the insecticides that cotton growers use early in the season to control weevils also eliminate many beneficial insects. As the need for early-season boll weevil sprays is eliminated, these beneficial insects can increase in number and become effective in controlling other cotton pests, like worms and aphids. Growers in eradicated areas can now delay their initial spray operations, reduce pesticide rates, use alternative pesticides or genetically engineered cotton varieties, or lengthen the intervals between sprays to reduce their operating costs while controlling any remaining cotton pests.

Q. Who can answer additional questions about the program?

A. You may contact the following offices for more information about the program: Southeastern Boll Weevil Eradication Foundation, Inc. (VA, NC, SC, GA, FL, AL, MS, TN, MO) at (800) 269-9925; Arkansas Boll Weevil Eradication Foundation (AR) at (877) 678-2292; Louisiana Boll Weevil Eradication Commission (LA) at (225) 952-8105; Oklahoma Boll Weevil Eradication Organization (OK) at (800) 246-4810; Texas Boll Weevil Eradication Foundation (TX) at (800) 687-1212; South Central New Mexico Cotton Boll Weevil Control Committee at (505) 541-0584; and the Pecos Valley (NM) Cotton Boll Weevil Control Committee at (505) 746-8700. In addition APHIS' national program office can be reached at (301) 734-8676.

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